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EXAMINER

DOE, JANIS L

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 04/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/670,320

Applicant(s)

WATANABE ET AL.

Examiner

Janis L. Dote

Art Unit

1756

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 April 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) 26 and 28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 and 27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-28 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 9/26/03; 1/05/04; 2/23/04; 3/01/04; 6/17/04; 11/1/04; 12/08/04; 12/29/04
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

20

Art Unit: 1756

1. Applicants' election without traverse of the invention of Group I, claims 1-25 and 27 in the reply filed on Apr. 4, 2005, is acknowledged.

Claims 26 and 28 have been withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicants timely traversed the restriction (election) requirement in the reply filed on Apr. 4, 2005.

2. The Japanese patent documents listed on the form PTO-1449 filed in the Information Disclosure Statement (IDS) on Sep. 26, 2003, have been crossed-out by the examiner because applicants did not provide copies of the Japanese patent numbers listed on the form PTO-1449. The IDS filed Sep. 26, 2003, failed to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. The information referred in the listed Japanese documents has not been considered.

The copies of the Japanese patent documents provided by applicants do not match Japanese patent numbers listed on the form PTO-1449 in the IDS filed on Sep. 26, 2003. The references

Art Unit: 1756

have not been considered. The IDS filed Sep. 26, 2003, fails to comply with 37 CFR 1.98(a)(1), which requires the following:

(1) a list of all patents, publications, applications, or other information submitted for consideration by the Office; (2) U.S. patents and U.S. patent application publications listed in a section separately from citations of other documents; (3) the application number of the application in which the information disclosure statement is being submitted on each page of the list; (4) a column that provides a blank space next to each document to be considered, for the examiner's initials; and (5) a heading that clearly indicates that the list is an information disclosure statement.

3. The examiner has considered only the material submitted by applicants, i.e., copies of the originally filed claims, abstracts, and figures of the US applications listed on "List of related cases" in the Information Disclosure statements filed on: (1) Jan. 5, 2004; (2) Feb. 23, 2004; (3) Mar. 1, 2004; and (4) Jun. 17, 2004,

The examiner has considered the US applications listed on "List of related cases" in the Information Disclosure statements filed on: (1) Nov. 1, 2004; (2) Dec. 8, 2004; (3) Dec. 29, 2004; (4) Jan. 12, 2005; and (5) Mar 4, 2005.

Art Unit: 1756

4. The information disclosure statement (IDS) filed on Sep. 26, 2003, Aug. 17, 2004, Sep. 9, 2004, and Sep. 23, 2004, does not comply with 37 CFR 1.98(a)(2)(iii), which requires legible copies of those portions of the copending U.S. patent applications which caused them to be listed.

Contrary to applicants, the waiver of the copy requirement in 37 CFR 1.98 for cited pending U.S. patent applicants was published in the Official Gazette on Oct. 19, 2004, prior to the filing of the disclosure statements filed on Aug. 17, 2004, Sep. 9, 2004, and Sep. 23, 2004. See 1287 Off. Gaz. Pat. Office 163 (Oct. 19, 2004).

In addition, when citing a pending US patent application that has been published under 35 USC 122(b), the USPTO prefers the citation be to the patent application publication (by publication number) rather than to the application itself (by application number).

Since the submissions appear to be bona fide, applicants are given **ONE (1) MONTH** from the date of this notice to supply the above mentioned omissions or corrections in the information disclosure statements. The examiner notes that if applicants have a postcard receipt stating that the USPTO did receive copies of the documents, applicants should provide a copy of

Art Unit: 1756

said receipt so that there is no ambiguity in the record that applicants did provide copies of the missing documents.

NO EXTENSION OF THIS TIME LIMIT MAY BE GRANTED UNDER EITHER 37 CFR 1.136(a) OR (b). Failure to timely comply with this notice will result in the above mentioned information disclosure statement being placed in the application file with the noncomplying information **not** being considered. See 37 CFR 1.97(i).

5. The disclosure is objected to because of the following informalities:

The use of trademarks, e.g., Henschel mixer [sic: HENSCHERL MIXER] at page 105, line 5, has been noted in this application. The trademarks should be capitalized wherever they appear and be accompanied by the generic terminology. This example is not exhaustive. Applicants should review the entire specification for compliance.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Appropriate correction is required.

Art Unit: 1756

6. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

(1) In claim 19, the recitation "tetrahydrofuran-soluble components of the modified polyester resin and the unmodified polyester resin have a number average molecular weight of from 2,000 to 15,000" lacks antecedent basis in the specification.

(2) In claim 21, the recitation "tetrahydrofuran-insoluble components in an amount of from 1 to 15% by weight based on the total weight of the binder resin." See page 28, lines 10-13, of the specification, which discloses that the tetrahydrofuran-insoluble components of the binder resin is preferably "from 1 to 30% by weight, and more preferably from 2 to 30% by weight, based on the total weight of the binder resin."

(3) The entire recitation in claim 23 lacks antecedent basis in the specification.

(4) In claim 25, the recitation "[a] toner container containing the toner composition" lacks antecedent basis in the specification.

(5) In claim 27, the recitation "at least one of an acrylic resin and a silicone resin" lacks antecedent basis in the specification. See page 13, lines 15-16, of the specification,

Art Unit: 1756

which discloses a carrier coated with an acrylic resin and/or a silicone resin.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1-23, 25, and 27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is indefinite in the phrase "an aqueous medium including a particulate material" (emphasis added) because it is not clear whether "a particulate material" refers to the particulate material that is present in "at least a surface portion of the toner particles while embedded into the surface portion" or to another particulate material.

Claim 1 is further indefinite in the phrase "the particulate material has an average particle diameter of from 0.002 to 0.2 times that of the toner particles" (emphasis added) for lack of unambiguous antecedent basis. It is not clear whether the particulate material having the particular particle

Art Unit: 1756

diameter refers to the previously recited particulate material that is present in "at least a surface portion of the toner particles while embedded into the surface portion" or to the previously recited particulate material in the aqueous medium in the product-by -process limitation.

Claims 2-5, 7, 10, and 11, which depend from claim 1, are indefinite in the phrase "the particulate material" (emphasis added) for lack of unambiguous antecedent basis. It is not clear whether the particulate material recited in claims 2-5, 7, 10, and 11 refers to the particulate material that is present in "at least a surface portion of the toner particles while embedded into the surface portion" or to the particulate material in the aqueous medium in the product-by -process limitation recited in claim 1.

Claim 15 is indefinite in the phrase "the particulate resin" (emphasis added) for lack of unambiguous antecedent basis in claim 1, from which claim 15 depends. Claim 1 recites the present of toner particles, a particulate material that is present in "at least a surface portion of the toner particles while embedded into the surface portion," and a particulate material in the aqueous medium in the product-by-process limitation recited in claim 1. Claim 1 does not recite the present of a particulate resin.

Art Unit: 1756

Claims 16 and 27 are indefinite in the phrase "the toner" (emphasis added) for lack of unambiguous antecedent basis in claim 1, from which claims 16 and 27 depend. Claim 1 recites the present of toner particles, not a toner. It is not clear to what "the toner" recited in claims 16 and 27 refers.

Claim 27 is further indefinite in the phrase "layer comprises at least one of an acrylic resin and a silicone resin" because it is not clear whether the claim requires that the layer comprise both resins or only one.

9. In order to expedite prosecution, the examiner has interpreted the claim language "a particulate material" in the phrase "an aqueous medium including a particulate material" recited in instant claim 1 to refer to the previously recited particulate material that is present in "at least a surface portion of the toner particles while embedded into the surface portion."

The examiner has interpreted the claim language recited in instant claim 27 to require that the carrier coating layer comprise either an acrylic resin or a silicone resin.

Rejections based on these interpretations are set forth infra.

Art Unit: 1756

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35

Art Unit: 1756

U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f), or (g) prior art under 35 U.S.C. 103(a).

13. US 2003/0138717 A1 (Yagi) was published on Jul. 24, 2003, and has an effective filing date of Oct. 31, 2002, which are both prior to the filing date of Sep. 26, 2003, of the instant application. The inventive entity of Yagi differs from that of the instant application. Thus, Yagi qualifies as prior art under 35 U.S.C. 102(a) and under 35 U.S.C. 102(e). Accordingly, Yagi qualifies also as prior art under 35 U.S.C. 103(a) and 103(c).

14. Claims 1-3, 6, 8-12, 15-25, and 27 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Yagi, as evidenced by applicants' admission at page 9, lines 21-23, page 24, line 20, to page 25, line 12, page 26, lines 24-27, page 28, lines 10-18, page 31, lines 11-14, and Table 1 at page 83, examples 1-6 and comparative examples 3 and 4, of the instant specification (applicants' admission 1).

Claims 1-3, 6, 8-12, 15-25, and 27 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Yagi, as evidenced by applicants' admission 1.

Art Unit: 1756

Yagi discloses a toner comprising toner particles comprising a binder resin that comprises a modified polyester resin and an unmodified polyester resin - low molecular weight polyester 1, carnauba wax as the releasing agent, and carbon black, and organic fine resin particles 1 adhered to the surface of the toner particles at a coverage ratio of 32 %. See paragraphs 0239-0273; example 2 in paragraph 0274; and Table 1 at page 23, example 2. The toner has a number average particle size ( $D_n$ ) of 5.50  $\mu\text{m}$  and a volume average particle size ( $D_v$ ) of 6.07  $\mu\text{m}$ , and a ratio of  $D_v/D_n$  of 1.10. The toner also has an average circularity of 0.953. See Table 1 at page 23, example 2. The average circularity, the  $D_v$ , the ratio  $D_v/D_n$ , and are within the ranges recited in instant claims 12, 17, and 18, respectively. Low molecular weight polyester resin has a weight average molecular weight of 6700, which is within the range of 2,000 to 10,000 recited in instant claims 1 and 24, and an acid value of 25, which is within the acid value range recited in instant claim 9. The low molecular weight polyester resin has a number average molecular weight of 2500, and a peak molecular weight in the range of from 1,000 to 30,000. Paragraph 0151, lines 1-2, and paragraph 0244, lines 14-15. The number average molecular weight and peak molecular weight are within the ranges of the non-modified polyester resin recited in

Art Unit: 1756

instant claim 19. The weight ratio of the modified polyester to low polyester resin 1 is about 0.6, which is within the ratio range of 5/95 to 60/40 recited in instant claim 8. The weight ratio was determined by the information provided in example 2 of Yagi. Organic fine resin particles 1 have a Tg of 57°C, and an average particle size of 100 nm. The Tg and average particle size meet the ranges recited in instant claim 3 and 11, respectively. The organic fine resin particle average particle size of 100 nm is 0.016 times the average particle size of the toner particles ( $6.07 \mu\text{m} = 6070 \text{ nm}$ ), which is within the range of 0.002 to 0.2 times recited in instant claims 1 and 24. The fine resin particles comprise a resin comprising styrene and methacrylic acid, where both monomers are present in weight ratios of 0.29 (29%) based on the total monomers constituting the resin particles. The weight ratios of 0.29 were determined from the information provided in paragraph 0239 of Yagi. The weight ratios of styrene and methacrylic acid satisfy the inequalities recited in instant claim 15.

Yagi further discloses that toner particles can be mixed with an external additive to assist in improving fluidity, developing property, and charging ability of the toner particles, which meets the external additive limitation recited in instant claim 23. Paragraph 0176.

Art Unit: 1756

Yagi also discloses that the toner can be used in a two-component developer comprising a carrier, which is coated with a resin layer. The resin layer may comprise an acrylic resin or a silicone resin. Paragraph 0222, lines 5-8, 14-15, and 17-18. The two-component developer meets the developer limitation recited in instant claim 27. Yagi discloses a toner container shown in Fig. 2. Paragraph 0236.

The Yagi toner in example 2 is obtained by: (1) preparing a master batch comprising the carbon black and a polyester resin; (2) preparing a material solution comprising the carnauba wax and the low molecular weight polyester 1; (3) forming a pigment-wax dispersion by mixing the master batch of step (1), the material solution, and additional low molecular weight polyester; (4) mixing the pigment-wax dispersion of step (3), a modified polyester resin comprising isocyanate groups, which is capable of reacting with an active hydrogen to form the urea-modified polyester, and a ketimine compound, which has an active hydrogen, in an organic solvent; (5) dispersing the mixture of step (4) in an aqueous medium comprising the organic fine resin particles, while reacting the ketimine compound with the modified polyester resin to form toner particles; (6) removing the organic solvent from the dispersion of step (5); (7) washing the toner particles resulting from step (6); and (8) drying the

Art Unit: 1756

washed toner particles. Paragraphs 0252-0273. The Yagi process steps meet the process steps recited instant claim 1.

Yagi does not explicitly disclose that the binder resin in example 2 has a glass transition Tg of not lower than 35°C and lower than 55°C recited in instant claims 1 and 24. Nor does Yagi disclose that the binder resin comprises the tetrahydrofuran (THF) insoluble components recited in instant claims 6 and 21, or the molecular weight distributions recited in instant claims 19 and 20. Nor does Yagi disclose that the modified polyester resin has the number average molecular weight or peak molecular weight recited in instant claim 19. Nor does Yagi disclose that the toner has a flow starting point of from 80 to 170°C recited in instant claim 16.

The instant specification discloses that the toner composition comprises the toner particles and particulate material as recited in instant claims 1 and 24 and the binder resin has Tg of not lower than 35°C and lower than 55°C, the toner has a combination of good fixability and offset resistance. Instant specification, page 9, lines 21-23, and page 26, lines 24-27, and Table 1 at page 83, examples 1-6 and comparative examples 3 and 4. The instant specification discloses that the binder resin comprises THF-insoluble components in an amount of 2 to 30 wt% based on the total weight

Art Unit: 1756

of the binder resin. The instant specification discloses that when the amount of THF-insolubles is too low, the resultant toner has poor hot offset resistance; and when the amount is too high, the toner has poor low temperature fixability. Instant specification, page 28, lines 10-18, and Table 1, examples 1-6 and comparative examples 3 and 4. The instant specification discloses at page 24, line 20, to page 25, line 12, that THF components of the modified polyester resin and the unmodified polyester resin have a peak molecular weight and the molecular weight distributions recited in instant claims 19 and 20 "in view of a low temperature fixability and offset resistance." The instant specification at page 31, lines 11-14, discloses that the toner also has a flow starting temperature as recited in instant claim 16 "in view of low temperature fixability and offset resistance."

As discussed above, the compositions of the Yagi toner particles and the Yagi organic fine resin particles in example 2 meet the compositional limitations recited in instant claims 1, 6, 16, 19-21, and 24; but the properties discussed supra that are not disclosed expressly. As discussed supra, the Yagi toner in example 2 is obtained by a process that meets the steps recited in instant claim 1. Yagi discloses that the toner in example 2 has low temperature fixability and offset resistance,

Art Unit: 1756

and does not contaminate the image forming members used, such as the fixing device and image bearing member. Paragraph 0032; and Table 3 at page 23, example 2, which reports that the toner in example 2 has a "lower fixing temperature" of 140°C and exhibits no occurrence of offset for temperatures below 220°C. Table 3 also reports that no toner filming was observed. These are the properties sought by applicants. Accordingly, because the Yagi toner particles and fine resin particles in example 2 meet the compositional and physical limitations recited in the instant claims and the Yagi toner appears to have the toner properties sought by applicants, it is reasonable to presume that the binder resin in the Yagi toner in example 2 has the Tg recited in instant claims 1 and 24 and the THF insoluble components and THF soluble component molecular weight properties recited in instant claims 6 and 19-21, and that the Yagi toner in example 2 has the flow starting point recited in instant claim 16. The burden is on applicants to prove otherwise. In re Fitzgerald, 205 USPQ 594 (CCPA 1980).

Yagi also does not explicitly disclose that the organic fine resin particles are embedded in the surface of the toner particles as recited in instant claims 1 and 24. However, as discussed above, organic fine resin particles 1 in example 2 of Yagi are present on the surface of the toner particles in a

Art Unit: 1756

coverage ratio of 32%. The Yagi toner in example 2 is obtained by a process that meets the steps recited in instant claim 1. Therefore, it is reasonable to presume that the Yagi organic fine resin particles are embedded in the surface of the toner particles as recited in instant claims 1 and 24. The burden is on applicants to prove otherwise. Fitzgerald, supra.

15. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yagi, as evidenced by applicants' admission 1 and applicants' admission at page 36, lines 8-10.

Yagi, as evidenced by applicants' admission 1, discloses a toner as described in paragraph 14 above, which is incorporated herein by reference.

Yagi further discloses that the remaining ratio of organic fine resin particles 1 on the surface of the toner particles is 0.5 % by weight based on the weight of the toner particles. Table 1 at page 23, example 2. Yagi defines the remaining ratio as a weight ratio of the weight of the resin particles remaining on the surface of the toner particles to the weight of the toner particles. Paragraphs 0086-0088. The instant specification at page 36, lines 8-10 discloses that the content of 0.5 to 5.0% by weight of particulate material based on the total weight of the toner particles means "the percentage of the particulate resin

Art Unit: 1756

remaining on the surface of the toner particles which have been subjected to a washing treatment." Thus, the Yagi remaining ratio of fine resin particles has the same definition as the content of particulate material recited in instant claim 7. Accordingly, the Yagi remaining ratio of 0.5 % by weight meets the content range of 0.5 to 5.0% by weight based on the weight of the toner particles recited in instant claim 7.

Yagi does not disclose that organic fine resin particles 1 in example 2 of Yagi have a weight average molecular weight (Mw) of 9,000 to 200,000 recited in instant claim 7. However, Yagi teaches at paragraph 0077 that the resin particles preferably have a Mw not greater than 100,000, and more preferably from 4,000 to 50,000. The upper limits, 100,000 and 50,000, of the MW ranges are within the Mw range of 9,000 to 200,000 recited in instant claim 7. The ranges "not greater than 100,000" and "from 4,000 to 50,000" overlap the range of 9,000 to 200,000 recited in instant claim 7. According to Yagi, "[w]hen the weight average molecular weight is too high, the resin particles prevent the toner from adhering to a receiving medium, and thereby causing a problem in that the fixing temperature has to be increased." Thus, the prior art appears to recognize that the Mw of the fine resin particles is a result-effective variable. The variation of a result-effective variable is

Art Unit: 1756

presumably within the skill of the ordinary person in the art.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Yagi, to adjust, through routine expectation, the Mw of the organic fine resin particles in the toner in example 2 of Yagi, such that the resultant fine resin particles have a Mw that is within the range recited in instant claim 7, such as 100,000 or 50,000, because that person would have had a reasonable expectation of successfully obtaining a toner that does not prevent the toner from adhering to a receiving member and has the properties as discussed by Yagi.

16. US 2003/0180644 A1 (Nanya) was published on Sep. 25, 2003, and has an effective filing date of Mar. 24, 2003, which are both prior to the filing date of Sep. 26, 2003, of the instant application. The inventive entity of Nanya differs from that of the instant application. Thus, Nanya qualifies as prior art under 35 U.S.C. 102(a) and under 35 U.S.C. 102(e). Accordingly, Nanya qualifies also as prior art under 35 U.S.C. 103(a) and 103(c).

17. Claims 1, 6, 8, 9, 12, 15-25, and 27 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35

Art Unit: 1756

U.S.C. 103(a) as obvious over Nanya, as evidenced by applicants' admission 1.

Claims 1, 6, 8, 9, 12, 15-25, and 27 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Nanya, as evidenced by applicants' admission 1.

Nanya discloses a toner comprising toner particles comprising a binder resin that comprises a modified polyester resin and an unmodified polyester resin - low molecular weight polyester 1, carnauba wax as the releasing agent, and carbon black, and organic fine resin particles 1 adhered to the surface of the toner particles in an amount of 4.6% by weight based on the weight of the toner particles and fine resin particles. See paragraphs 0107-0135; paragraph 0147, example 4; and Table 1-1 at page 13, example 4. The toner has a number average particle size ( $D_n$ ) of 4.24  $\mu\text{m}$  and a volume average particle size ( $D_v$ ) of 5.09  $\mu\text{m}$ , and a ratio of  $D_v/D_n$  of 1.20. The toner also has an average circularity of 0.927. See Table 1-1 at page 13, example 4. The average circularity, the  $D_v$ , the ratio  $D_v/D_n$ , and are within the ranges recited in instant claims 12, 17, and 18, respectively. Low molecular weight polyester resin has a weight average molecular weight of 6700, which is within the range of 2,000 to 10,000 recited in instant claims 1 and 24, and

Art Unit: 1756

an acid value of 25; which is within the acid value range recited in instant claim 9. The low molecular weight polyester resin has a number average molecular weight of 2500, and a peak molecular weight of from 1,000 to 30,000. Paragraph 0050, lines 1-2, and paragraph 0119, lines 12-13. The number average molecular weight and peak molecular weight are within the ranges of the non-modified polyester resin recited in instant claim 19. The weight ratio of the modified polyester to low polyester resin 1 is about 0.36, which is within the ratio range of 5/95 to 60/40 recited in instant claim 8. The weight ratio was determined by the information provided in example 4 of Nanya. Organic fine resin particles 1 have an average particle size of 100 nm. The organic fine resin particle average particle size of 100 nm is 0.02 times the average particle size of the toner particles ( $5.09 \mu\text{m} = 5090 \text{ nm}$ ), which is within the range of 0.002 to 0.2 times recited in instant claims 1 and 24. The fine resin particles comprise a resin comprising styrene and methacrylic acid, where both monomers are present in weight ratios of 0.29 (29%) based on the total monomers constituting the resin particles. The weight ratios of 0.29 were determined from the information provided in paragraph 0109 of Nanya. The weight ratios of styrene and methacrylic acid satisfy the inequalities recited in instant claim 15. The toner particles

Art Unit: 1756

in example 4 of Nanya are further mixed with an external additive, which meets the external additive limitation recited in instant claim 23. Paragraph 0183.

Nanya also discloses that the toner can be used in a two-component developer comprising a carrier, which is coated with a resin layer. The resin layer may comprise an acrylic resin or a silicone resin. Paragraph 0104, lines 16-17, 19, 25, and 28; and paragraph 0204. The two-component developer meets the developer limitation recited in instant claim 27. Nanya discloses that the toner is used in the image forming apparatus IMAGIO NEO 450 manufactured by Ricoh, which usually comprises a toner container. Paragraph 0204.

The Nanya toner in example 4 is obtained by: (1) preparing a master batch comprising the carbon black and the low molecular weight polyester 1; (2) preparing a material solution comprising the carnauba wax and the low molecular weight polyester 1; (3) forming a pigment-wax dispersion by mixing the master batch of step (1), the material solution, and additional low molecular weight polyester; (4) mixing the pigment-wax dispersion of step (3), a modified polyester resin comprising isocyanate groups, which is capable of reacting with an active hydrogen to form the urea-modified polyester, and a ketimine compound, which has an active hydrogen, in an organic solvent; (5) dispersing

Art Unit: 1756

the mixture of step (4) in an aqueous medium comprising the organic fine resin particles, while reacting the ketimine compound with the modified polyester resin to form toner particles; (6) removing the organic solvent from the dispersion of step (5); (7) washing the toner particles resulting from step (6); and (8) drying the washed toner particles.

Paragraphs 0120-0135 and 0147. The Nanya process steps meet the process steps recited instant claim 1.

Nanya does not explicitly disclose that the binder resin in example 4 has a glass transition  $T_g$  of not lower than  $35^{\circ}\text{C}$  and lower than  $55^{\circ}\text{C}$  recited in instant claims 1 and 24. Nor does Nanya disclose that the binder resin comprises the tetrahydrofuran (THF) insoluble components recited in instant claims 6 and 21, or the molecular weight distributions recited in instant claims 19 and 20. Nor does Nanya disclose that the modified polyester resin has the number average molecular weight or peak molecular weight recited in instant claim 19. Nor does Nanya disclose that the toner has a flow starting point of from  $80$  to  $170^{\circ}\text{C}$  recited in instant claim 16.

The instant specification discloses that the toner composition comprises the toner particles and particulate material as recited in instant claims 1 and 24 and the binder resin has  $T_g$  of not lower than  $35^{\circ}\text{C}$  and lower than  $55^{\circ}\text{C}$ , the

Art Unit: 1756

toner has a combination of good fixability and offset resistance. The instant specification also discloses that when the binder resin comprises THF-insoluble components and THF soluble components as recited in instant claims 6 and 19-21, the toner has good low temperature fixability and good offset resistance. The instant specification further discloses that the toner also has a flow starting temperature as recited in instant claim 16 "in view of low temperature fixability and offset resistance." The discussion of the instant specification in paragraph 14 is incorporated herein by reference.

As discussed above, the compositions of the Nanya toner particles and the Nanya organic fine resin particles in example 4 meet the compositional limitations recited in instant claims 1, 6, 16, 19-21, and 24, but the properties discussed supra that are not disclosed expressly. As discussed supra, the Nanya toner in example 4 is obtained by a process that meets the steps recited in instant claim 1. Nanya discloses that the toner in example 4 has low temperature fixability and offset resistance. Paragraph 0007; and Table 1-2 at page 13, example 4, which reports that the toner in example 4 has a "lower fixing temperature" of 130°C and exhibits offset for temperatures above 240°C. These are the properties sought by applicants. Accordingly, because the Nanya toner particles and

Art Unit: 1756

fine resin particles in example 4 meet the compositional and physical limitations recited in the instant claims and the Nanya toner appears to have the toner properties sought by applicants, it is reasonable to presume that the binder resin in the Nanya toner in example 4 has the Tg recited in instant claims 1 and 24 and the THF insoluble components and THF soluble component molecular weight properties recited in instant claims 6 and 19-21, and that the Nanya toner in example 4 has the flow starting point recited in instant claim 16. The burden is on applicants to prove otherwise. Fitzgerald, supra.

Nanya also does not explicitly disclose that the organic fine resin particles are embedded in the surface of the toner particles as recited in instant claims 1 and 24. However, as discussed above, organic fine resin particles in example 4 of Nanya are present on the surface of the toner particles in an amount of 4.6 % by weight based on the weight of the toner particles and resin particles. The Nanya toner in example 4 is obtained by a process that meets the steps recited in instant claim 1. Therefore, it is reasonable to presume that the Nanya organic fine resin particles are embedded in the surface of the toner particles as recited in instant claims 1 and 24. The burden is on applicants to prove otherwise. Fitzgerald, supra.

Art Unit: 1756

18. Claims 1, 5, 8, 22-25, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,416,917 B1 (Nakanishi) combined with US 5,066,558 (Hitake), as evidenced by US 6,106,986 (Shirai).

Nakanishi discloses a toner comprising toner particles comprising a binder resin that comprises a urea modified polyester resin and an unmodified polyester resin, a wax as the releasing agent, and a colorant. See example 1 at cols. 12 and 13 (the recitation of compound (B-2) is clearly an error, compound (B-1) should be recited). The binder resin has a glass transition temperature of 52°C, which is within the range of not lower than 35°C and lower than 55°C recited in instant claims 1 and 24. The toner particles have an average particle size of 6  $\mu$ m. The unmodified polyester resin has a weight average molecular weight of 4000, which is within the range of 2,000 to 10,000 recited in instant claims 1 and 24. The weight ratio of the modified polyester to unmodified polyester resin is about 0.24, which is within the ratio range of 5/95 to 60/40 recited in instant claim 8. The weight ratio was determined by the information provided in example 1 of Nakanishi. The toner particles in example 1 of Nakanishi are further mixed with an external additive, which meets the external additive limitation recited in instant claim 23. Col. 13, lines 24-27.

Art Unit: 1756

Nakanishi also discloses that the toner can be used in a two-component developer comprising a carrier, which is coated with a resin, such as acrylic resin or silicone resin. Col. 12, lines 5-9. The two-component developer meets the developer limitation recited in instant claim 27. Nakanishi discloses that the toner is mixed with a carrier in a tumbler shaker mixer. Col. 16, lines 58-53. Thus, Nakanishi discloses a container comprising the toner.

Nakanishi does not disclose that the surface of the toner particles in example 1 comprises a particulate material where the particulate material is embedded on the surface of the toner particles as recited in instant claims 1 and 24. However, Nakanishi discloses that an external additive such as colloidal silica particles, e.g., AEORSIL R972 product of Nippon Aerosil Co. Ltd., can be used. Col. 13, lines 24-28.

Hitake teaches embedding colloidal silica particles R-972 obtained from Nihon Aerosil K.K. (the same company - "Nippon" and "Nihon" are alternative readings of the same word), in the surface of toner particles by a mechanical impact method in an amount of 0.5 parts by weight per 100 parts by weight of toner particles, and then adding 0.2 parts by weight of colloidal silica particles R-972 to 100 parts by weight of the silica embedded toner particles. The second-added colloidal silica

Art Unit: 1756

particles are attached to the surface of the toner particles. Colloidal silica particles R-972 have a particle size of 10 to 30 millimicron, i.e., nm. Col. 20, line 63, to col. 21, line 30. The commercially available colloidal silica particles R-972 have an average particle size of about 16 nm. See Shirai, col. 4, lines 7-11. The average particle size of about 16 nm is about 0.003 times the average particle size of the Nakanishi toner particles in example 1 ( $6\text{ }\mu\text{m} = 6000\text{ nm}$ ), which meets the particle size limitation recited in instant claims 1 and 24. According to Hitake, toner particles comprising embedded silica powder and silica powder that is not fixed to the surface of the toner particles have good fluidity and are capable of providing high density images without fog or toner scattering for a large number of copies and even when the toner is left standing for a long period. Col. 3, lines 12-22, and col. 21, lines 32-43. Hitake discloses that when conventional toners comprising electrostatically attached silica powder are left in storage for a long period, the silica powder becomes free from the toners. Such toners provide images with increased fog and decreased image density. Col. 3, lines 34-39, and the table at cols. 24-25, comparative examples 1-3.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Hitake, to add the

Art Unit: 1756

commercially available silica powder R-972 to the surface of the Nakanishi toner particles of example 1 in the manner taught by Hitake, such that the silica powder is embedded on the surface of the toner particles and attached to the surface of the toner particles, because that person would have had a reasonable expectation of successfully obtaining a toner that has good fluidity and provides high density images without fog or toner scattering for a large number of copies and even when the toner is left standing for a long period, as disclosed by Hitake.

Instant claim 1 is written in product-by-process format. The Nakanishi toner in example 1 is not obtained by the process steps recited in instant claim 1. However, as discussed above, the combined teachings of Nakanishi and Hitake, as evidenced by Shirai, render obvious a toner that meets the compositional limitations recited in instant claim 1, and that would appear to have very similar properties in use. Accordingly, the toner rendered obvious over the combined teachings of Nakanishi and Hitake, as evidenced by Shirai, appears to be the same or substantially the same as the toner obtained by the process steps recited in instant claim 1. The burden is on applicants to prove otherwise. In re Marosi, 218 USPQ 289 (Fed. Cir. 1983); In re Thorpe, 227 USPQ 964 (Fed. Cir. 1985); MPEP 2113.

Art Unit: 1756

19. Claims 1-4, 8, 10, 22-25, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakanishi combined with US 4,980,257 (Anno).

Nakanishi discloses a toner as described in paragraph 18 above, which is incorporated herein by reference.

Nakanishi does not disclose that the surface of the toner particles in example 1 comprises a particulate material where the particulate material is embedded on the surface of the toner particles as recited in instant claims 1 and 24.

Anno teaches thermally fixing minute cross-linked vinyl resin particles **a** having Tg of 83°C and minute vinyl resin particles **b** having a Tg of 81°C to the surface of toner particles using a heat-treating and impact type modifying machine, Nara Hybridization System. Both minute resin particles **a** and **b** have an average particle size of 1 micron. Col. 16, lines 40-45; col. 20, lines 51-55; col. 21, lines 24-58; and col. 23, lines 43-55. The Tg's are within the Tg ranges recited in instant claims 2 and 3. The minute resin particles **a** and **b** meet the compositional limitations recited in instant claims 10. The minute resin particles **a** also meets the crosslinked limitation recited in instant claim 4. The average particle size of 1 micron is about 0.017 times the average particle size of the Nakanishi toner particles in example 1 ( $6\text{ }\mu\text{m} = 6000\text{ nm}$ ),

Art Unit: 1756

which meets the particle size limitation recited in instant claims 1 and 24. According to Anno, toner particles comprising the minute resin particle a and b, as taught by Anno, has stable charging properties, high flowability, and high cleaning property. Col. 3, lines 54-58, and Tables 3 and 4 at cols. 27-30, example 1 and comparative example 10, which does not comprise any minute resin particles.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Anno, to add the Anno minute resin particles a and b to surface of the Nakanishi toner particles of example 1 in the manner taught by Anno, because that person would have had a reasonable expectation of successfully obtaining a toner that has high flowability, stable charging property, and high cleaning property, as disclosed by Hitake.

Instant claim 1 is written in product-by-process format. The Nakanishi toner in example 1 is not obtained by the process steps recited in instant claim 1. However, as discussed above, the combined teachings in Nakanishi and Anno render obvious a toner that meets the compositional limitations recited in instant claim 1, and that would appear to have very similar properties in use. Accordingly, the toner rendered obvious over the combined teachings of Nakanishi and Anno appears to be

Art Unit: 1756

the same or substantially the same as the toner obtained by process steps recited in instant claim 1. The burden is on applicants to prove otherwise. Marosi, supra; Thorpe, supra; MPEP 2113.

20. Claims 13 and 14 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The prior art of record does not teach or suggest that the toner particles have a spindle form as recited in instant claims 13 and 14.

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L. Dote whose telephone number is (571) 272-1382. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Mark Huff, can be reached on (571) 272-1385. The central fax phone number is (703) 872-9306.

Any inquiry regarding papers not received regarding this communication or earlier communications should be directed to Supervisory Application Examiner Ms. Claudia Sullivan, whose telephone number is (571) 272-1052.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on

Application/Control Number: 10/670,320

Page 34

Art Unit: 1756

access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Apr. 23, 2005